Exhibit 48

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF SOUTH CAROLINA CHARLESTON DIVISION

SOUTH CAROLINA COASTAL CONSERVATION LEAGUE, *et al.*, Plaintiffs, v. ANDREW R. WHEELER, *et al.*, Defendants. AMERICAN FARM BUREAU FEDERATION, *et al.*, Intervenor-Defendants.	)	No. 2:20-cv-01687-DCN

DECLARATION OF JOVIAN SACKETT

I, Jovian Sackett, make the following declaration.

1. I am over the age of eighteen (18) and suffer from no legal incapacity. This declaration is based on my personal knowledge and belief.

2. I am a resident of Durham, North Carolina.

3. I am employed by the Southern Environmental Law Center as the Director of Geospatial Science. I have a B.A. in Environmental Studies and a B.A. in Geography from the University of North Carolina at Wilmington and a M.A. in Geography from the University of South Carolina. I am also a Geographic Information Systems Professional (GISP), certification number 66528, awarded on 4/25/2012.

4. In my role as Director of Geospatial Science, I am responsible for the management of SELC's Geospatial Team and data; the design and implementation of geospatial projects (both analytical and cartographic); and the application of, interpretation of, and communication about geographic data. In other words, I oversee both the production of geospatial deliverables based on geographic data (usually maps, but summary statistics and data visualizations too) and the reading and critique of third-party maps and geographic data with respect to environmental law and policy. I have had similar responsibilities since joining the Southern Environmental Law Center in 2007.

5. Geographers, like myself, are generally integrative scientists, meaning our expertise is in the study of the connections and relationships throughout the earth (ex. climate and society, or land development and ecosystem function). I have experience with geographic information systems (GIS) as a tool for measuring and studying human/environment interactions and cartography as a tool for depicting the significant connections between earth objects. My expertise allows me to understand the difference between the abstracted lines on maps and their absolute and discrete reality on earth. I then coach environmental attorneys and decision makers about how to best apply the geographic data (field notes, instruments readings, photography and sensors) available.

Analysis Background

6. For the present case, I used available science about hydrology/geomorphology and geospatial data about wetlands to approximate the wetland acreage by water regime in the entire contiguous United States as well as in selected watersheds. Water regime is a characteristic to describe the duration and completeness with which wetlands hold water in any given year. The analyzed watersheds and primary corresponding states were: VA – Potomac

River,[1] Rappahannock River, James River; NC – Cape Fear River, Lake Norman (Catawba River), Neuse River; SC – Charleston Harbor, Congaree River, Saluda River; GA/AL – Chattahoochee River.

7. For the purpose of this analysis, I focused on wetland water regimes as described by the U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) using the well-established Cowardin Classification System. Developed by Cowardin, et al., during the mid-to-late 1970s the system was intended to "provide basic data on the characteristics and extent of the Nation's wetlands and deepwater habitats and should facilitate the management of these areas on a sound, multiple-use basis."[2, 3] More importantly though, that mandate was driven by a need to update a previous nationwide system of wetlands inventory from the 1950s in order to document natural and anthropogenic changes and collect more refined information due to "federal legislation…passed to protect wetlands."[4] The National Wetlands Inventory exists as a direct result of the need to better understand and plan for management of the nation's water resources, as part of the Clean Water Act of 1972. It is fitting that the most recent version of the NWI continues to inform decision making about the Clean Water Act today.

8. The National Wetlands Inventory was designed to provide a consistent classification of wetlands as ecological mapping units for use by FWS.[5] Furthermore, NWI provides a detailed classification of the water regime of each wetland type it maps.

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[1] The Potomac River watershed also includes portions of West Virginia, Maryland, Pennsylvania, and the District of Columbia.

[2] Documents in the administrative record contain the prefix EPA-HQ-OW-2018-0149 followed by the Docket Document ID. See Administrative Record Index (Doc. No. 54-1, Ex. 1). In citing to documents in the administrative record, Plaintiffs have omitted the prefix and cite only to the author, title of the document, its date, and the Administrative Record Docket Document ID ("AR").

[3] Cowardin, L. M., et al., Classification of Wetlands and Deepwater Habitats of the United States, U.S. Fish and Wildlife Service (AR 11626) at 2 (1979), https://www.regulations.gov/document?D=EPA-HQ-OW-2018-0149-11626 ("Cowardin").

[4] Id.

[5] Dahl, T.E., J. Dick, J. Swords, and B.O. Wilen, Data Collection Requirements and Procedures for

9. I focused on wetlands where surface water is rarely or only temporarily present: Temporarily Flooded (A), Seasonally Saturated (B), Continuously Saturated (D), and Intermittently Flooded (J) water regime modifiers of the NWI.[6] These modifiers refer to water regimes that are non-tidal, primarily in palustrine (wetland) systems, but also some lacustrine (lake) and riverine (river) systems.[7] This analysis only focused on palustrine systems, since that is where the majority of these water regimes are represented.

10. Cowardin describes temporarily/intermittently flooded wetlands as including seasonally flooded basins and flats, including wet meadows.[8] For example, despite being "largely controlled by precipitation and evapotranspiration," Carolina and Delmarva bays experience "nearly continuous shallow ground-water recharge" and periodic shallow ground-water discharge, resulting in periods with no surface water.[9]

11. Saturated wetlands include bogs, pocosins, fens, and similar wetland types.[10] Fens are a kind of slope wetland[11] that is groundwater driven, while bogs and pocosins typically collect precipitation.[12] These wetland types are not typically flooded by perennial or intermittent streams, but rather "temporarily hold water and then slowly release it to downstream waters."[13]

Mapping Wetland, Deepwater and Related Habitats of the United States. Division of Habitat and Resource Conservation (version 2) at 6 (2015), https://www.fws.gov/wetlands/documents/Data-Collection-Requirements-and-Procedures-for-Mapping-Wetland-Deepwater-and-Related-Habitats-of-the-United-States.pdf. ("Dahl").

[6] The capital letters used to represent water regime modifiers in NWI are reassigned from the letters used in Cowardin, et. el. (1979).

[7] Federal Geographic Data Committee, Wetlands Subcommittee, Classification of Wetlands and Deepwater Habitats of the United States, Docket ID No. FGDC–STD-004-2013, Second Edition (AR 11629) at 38 (August 2013), https://www.regulations.gov/document?D=EPA-HQ-OW-2018-0149-11629. ("NWI Metadata").

[8] Cowardin at 13.

[9] EPA Office of Res. & Dev., Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence (AR 11691) at B-5, https://www.regulations.gov/document?D=EPA-HQ-OW-2018-0149-11691 ("Science Report").

[10] Cowardin at 28.

[11] Science Report at 4-20.

[12] Science Report at 4-21.

[13] See U.S. Environmental Protection Agency & U.S. Army Corps of Engineers, Technical Support Document for the Clean Water Rule: Definition of Waters of the United States (see AR 11460, document 285) at 340 (May 27, 2015), https://www.regulations.gov/document?D=EPA-HQ-OW-2011-0880-20869.

12. Cowardin illustrates the position of these water regimes, with respect to others, across a landscape matrix of palustrine and upland systems, as copied here in Figure 1:[14]

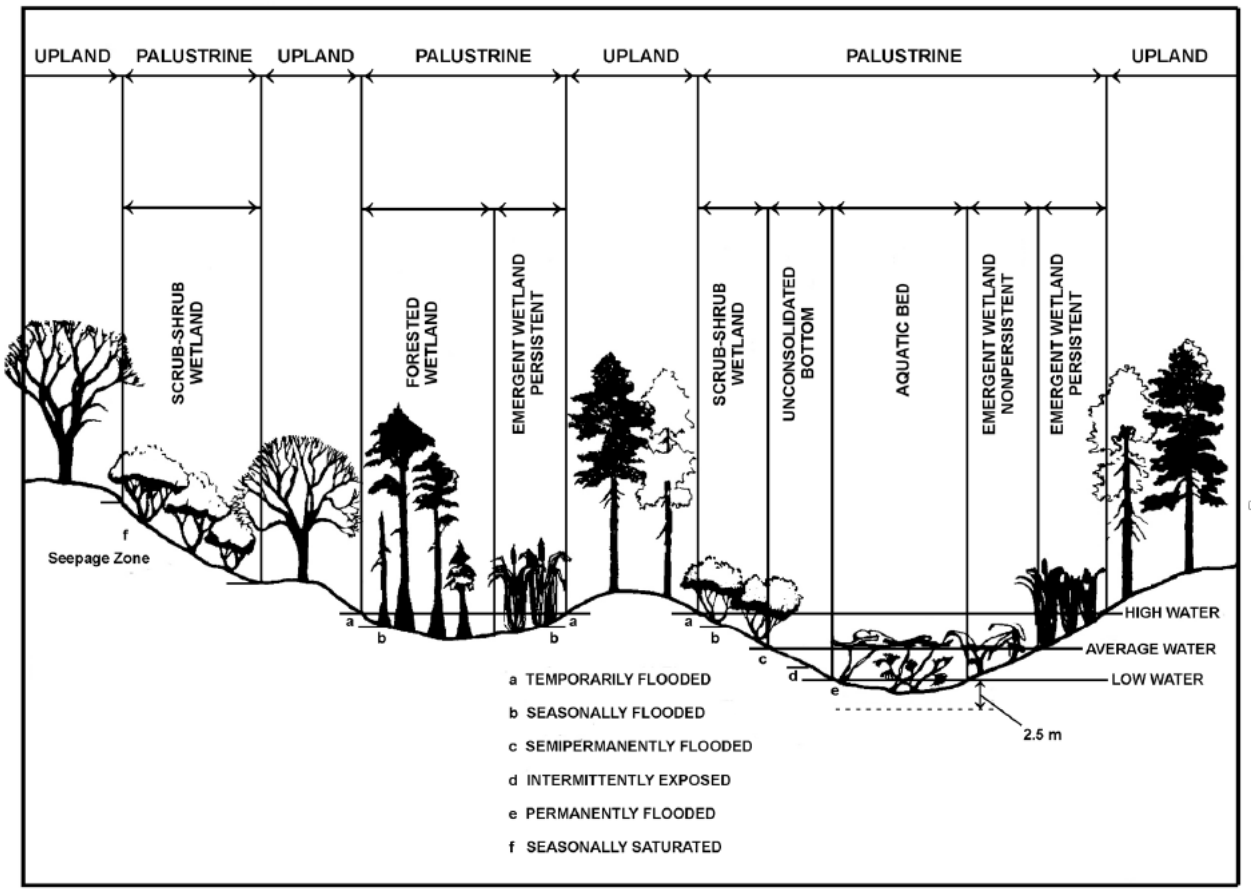


Figure 1

13. In their Economic Analysis for the Navigable Waters Protection Rule: Definition of "Waters of the United States" (2020), the Environmental Protection Agency and Corps of Engineers cited the NWI metadata pertaining to water regime modifiers. Specifically, the agencies noted that Temporarily Flooded wetlands only have surface water for "a few days to a few weeks" during the growing season and Intermittently Flooded wetlands may have years

[14] Cowardin at 13.

between periods of inundation.[15] In addition, Seasonally Saturated wetlands typically do not have surface water for longer than "a few days after heavy rain and upland runoff."[16] In Continuously Saturated wetlands, "widespread surface inundation is rare."[17]

14. In sum, the presence of surface water in these wetland regimes is sporadic and most often due to elevated vertical (groundwater) or temporal (precipitation).[18] To the extent these wetlands receive overflow from a perennial or intermittent river or stream, that flooding is also sporadic and short-lived.[19] Therefore, these water regimes are the most likely to be excluded from the new "waters of the United States" definition. They are collectively referred to below as the "target" water regimes.

Technical Analysis

15. To complete this analysis, I used Esri ArcGIS Pro v.2.4.2 for geospatial tasks, R v3.5.1 for generating summary statistics, and Microsoft Excel 2019 for combining and presenting results.

16. Data collection was the first phase of the study. Although there is no single dataset that maps all the nation's streams, wetlands, and watersheds systematically, there are best available nationwide data approximating streams, wetlands, and watersheds published by the mapping divisions of U.S. government agencies. Those data are published for helping understand the complexities and inter-relationships of human-environment interactions, as it relates to natural resource management and policy. My intent was to create both a nationwide

[15] U.S. Environmental Protection Agency & U.S. Army Corps of Engineers, Economic Analysis for the Navigable Waters Protection Rule: Definition of "Waters of the United States (AR 11572) at 101 (Jan. 22, 2020) ("Economic Analysis").
[16] Id.
[17] Id.
[18] Science Report at 1-4–1-7.
[19] Id.

dataset of wetlands, classified by water regime, and to have that dataset subdivided by both ecological (watersheds) and political (county/state) geographic units.[20] Geospatial data for 12-digit hydrologic units (watersheds) came from the U.S. Geological Survey (USGS) Watershed Boundaries Dataset (WBD), 4th edition, "to ensure the digital geographic data are usable with other related" geospatial data.[21] The geospatial dataset for wetlands, the FWS's NWI v.2, affirms its applicability to this type of analysis, "[t]he information collected using these requirements and procedures are intended to support the decision-making process."[22, 23] From their metadata, I knew neither of these datasets were designed to represent jurisdictional determinations but are intended to map the nation's waters and wetlands using uniform national mapping standards developed by U.S governmental agencies. The NWI applies the Cowardin Classification System, designed to provide a consistent classification of wetlands as ecological mapping units for use by FWS.[24]

17. In order to compile NWI data for the contiguous United States, SELC hired and I supervised Esri, a geospatial software and services company, to download and process the source data with computing power much greater than what SELC possesses. Esri downloaded all the source data for each state from FWS, and produced enhanced geodatabases of the contiguous United States, with wetlands aggregated by state and county geography in one database and 12-

[20] Geospatial data for county and state boundaries, were from the U.S. Census Bureau, and although built into the final data through analysis, were not included in any of my results, in order to focus solely on the ecological side of the impacts.
[21] U.S. Geological Survey and U.S. Department of Agriculture, Natural Resources Conservation Service, Federal Standards and Procedures for the National Watershed Boundary Dataset (WBD) at 1 (2013), http://pubs.usgs.gov/tm/tm11a3/.
[22] NWI v.2 represents the methodologies of Dahl et.al. Within the version numbers, actual data are updated more frequently, and this analysis used data, associated with the October 2019 release, the most recently available at the time.
[23] Dahl, et. al. at 5.
[24] Dahl, et. al. at 6.

digit HUC watersheds in another.[25] I verified Esri's process and reformatted the summary tables they provided.

18. At this stage, I brought an additional team member, Libbie Weimer, geospatial analyst, in to help work with the data. The geodatabases created by Esri were incredibly large, and therefore difficult to summarize with the GIS software, ArcGIS Pro. Ms. Wiemer used the statistical programming language, R, to create more workable summary tables of data that estimated the number of acres of wetlands assigned to each NWI wetland classification across the contiguous United States.

19. This table (Table 1) shows the HUC codes corresponding to each watershed selected for in-depth analysis:

Table 1

Watershed	All 12-digit HUCs comprising these larger 6-,8-,10-digit HUCs
Potomac	020700
Rappahannock	02080103, 02080104
James	020802
Neuse	030202
Cape Fear	030300
Lake Norman (Catawba River)	0305010111, 0305010112
Saluda	03050109
Congaree	03050110
Charleston Harbor	03050201, 03050202, 03050209
Chattahoochee	03130001, 03130002, 03130003, 03130004

20. In their data processing, Esri isolated the water regime modifier from the full Cowardin code in NWI, using the Wetlands Decoder Table, which "*provides a crosswalk from U.S. Fish and Wildlife Service, National Wetlands Inventory (NWI) wetlands data, as defined by*

[25] Esri (2020). NWI Data Processing Steps.

the Federal Wetland Mapping Standard, to the complete wetland definitions, as defined by the Federal Wetlands Classification Standard."[26]

21. In order to estimate wetland types by target water regime, I utilized the summary tables for water regime codes of the NWI dataset, those created in R, within the watersheds of interest listed in Table 1.

22. After creating a new row of values for the select watersheds, based on their HUC code, I then summarized the results in Excel. A single pivot table was created to show columns for wetland acres in each target water regime and rows for each watershed. The values of the pivot tables were the total acres of wetlands classified by each water regime for each Table 1 watershed. Some values were zero.

Results

23. As shown in Table 2, and based on my analysis, I estimate that 45,103,442 acres of wetlands in the contiguous United States are classified as Temporarily Flooded, Seasonally Saturated, Continuously Saturated, or Intermittently Flooded. Table 2 also contains the results for the selected watersheds analysis:

[26] U.S. Fish and Wildlife Service, Wetland Classification Codes (2019), https://www.fws.gov/wetlands/Data/Wetland-Codes.html (downloaded Feb. 3, 2020).

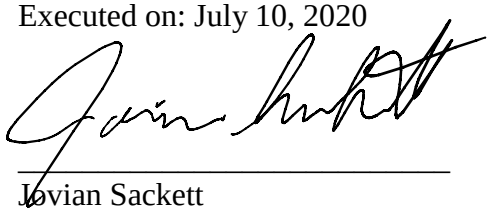
Table 2

Analysis Area		Temporarily Flooded (A)	Seasonally Saturated (B)	Continuously Saturated (D)	Intermittently Flooded (J)	Total
Target Watershed	Potomac	66,079	7,142	7,142	253	80,616
	Rappahannock	14,021	9,723		5	23,750
	James	70,364	14,750	5,184	1	90,299
	Neuse	167,544	197,042			364,586
	Cape Fear	141,801	385,195			526,996
	Lake Norman	783	12			796
	Saluda	16,679	3,852			20,531
	Congaree	29,144	13,762			42,906
	Charleston Harbor	76,626	81,148			157,774
	Chattahoochee	147,076	15,073			162,149
Contiguous U.S.		**25,214,419**	**11,530,268**	**7,749,017**	**609,738**	**45,103,442**

24. The results of my analysis estimate the acreage for a subset of wetlands that less frequently have surface water and are therefore likely to be excluded by the new waters of the United States definition. This vulnerable subset includes waters classified as Temporarily Flooded, Seasonally Saturated, Continuously Saturated, and Intermittently Flooded. Estimating the exact amount of any type of wetlands that lose jurisdiction under the Rule would require on-the-ground, site-specific analysis. However, the analysis described above provides estimates based on the most complete nationwide geospatial data, while honoring the limitations of scale and the data's intended use.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed on: July 10, 2020



Jovian Sackett